



~~14~~ 15

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SEQUENCE LISTING

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Stiefel, Thomas
Voelter, Wolfgang
Welters, Peter

<120> Recombinant Mistletoe Lectins

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<141> 2000-10-06

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			20					25					30		
Phe	Ser	Asn	Glu	Ile	Pro	Leu	Leu	Arg	Gln	Ser	Thr	Ile	Pro	Val	Ser
		35					40					45			
Asp	Ala	Gln	Arg	Phe	Val	Leu	Val	Glu	Leu	Thr	Asn	Gln	Gly	Xaa	Asp
	50					55				60					
Ser	Xaa	Thr	Ala	Ala	Ile	Asp	Val	Thr	Asn	Xaa	Tyr	Val	Val	Ala	Tyr
65					70				75					80	
Gln	Ala	Gly	Asp	Gln	Ser	Tyr	Phe	Leu	Arg	Asp	Ala	Pro	Arg	Gly	Ala
				85					90					95	
Glu	Thr	His	Leu	Phe	Thr	Gly	Thr	Thr	Arg	Xaa	Ser	Ser	Leu	Pro	Phe
			100					105					110		

Xaa Gly Ser Tyr Xaa Asp Leu Glu Arg Tyr Ala Gly His Arg Asp Gln	115	120	125
Ile Pro Leu Gly Ile Xaa Gln Leu Ile Gln Ser Val Xaa Ala Leu Arg	130	135	140
Xaa Pro Gly Gly Ser Thr Arg Xaa Gln Ala Arg Ser Ile Leu Ile Leu	145	150	155
Ile Gln Met Ile Ser Glu Ala Ala Arg Phe Asn Pro Ile Leu Trp Arg	165	170	175
Xaa Arg Gln Xaa Ile Asn Ser Gly Xaa Ser Phe Leu Pro Asp Xaa Tyr	180	185	190
Met Leu Glu Leu Glu Thr Ser Trp Gly Gln Gln Ser Thr Gln Val Gln	195	200	205
His Ser Thr Asp Gly Val Phe Asn Asn Pro Xaa Arg Leu Ala Ile Xaa	210	215	220
Xaa Gly Asn Phe Val Thr Leu Xaa Asn Val Arg Xaa Val Ile Ala Ser	225	230	235
Leu Ala Ile Met Leu Phe Val Cys Gly Glu Arg Pro Ser Ser Ser Asp	245	250	255
Val Arg Tyr Trp Pro Leu Val Ile Arg Pro Val Ile Ala Asp Asp Val	260	265	270
Thr Cys Ser Ala Ser Glu Pro Thr Val Arg Ile Val Gly Arg Xaa Gly	275	280	285
Met Xaa Val Asp Val Arg Asp Asp Asp Phe His Asp Gly Asn Gln Ile	290	295	300
Gln Leu Trp Pro Ser Lys Ser Asn Asn Asp Pro Asn Gln Leu Trp Thr	305	310	315
Ile Lys Arg Asp Xaa Thr Ile Arg Ser Asn Gly Ser Cys Leu Thr Thr	325	330	335
Tyr Gly Tyr Thr Ala Gly Val Tyr Val Met Ile Phe Asp Cys Asn Thr	340	345	350
Ala Val Arg Glu Ala Thr Ile Trp Gln Ile Trp Xaa Asn Gly Thr Ile	355	360	365
Ile Asn Pro Arg Ser Asn Leu Val Leu Ala Ala Ser Ser Gly Ile Lys	370	375	380
Gly Thr Thr Leu Thr Val Gln Thr Leu Asp Tyr Thr Leu Gly Gln Gly	385	390	395
Trp Leu Ala Gly Asn Asp Thr Ala Pro Arg Glu Val Thr Ile Tyr Gly	405	410	415
Phe Arg Asp Leu Cys Met Glu Ser Asn Xaa Gly Ser Val Trp Val Glu	420	425	430

Thr Cys Xaa Ser Ser Gln Xaa Asn Gln Xaa Xaa Trp Ala Leu Tyr Gly
 435 440 445
 Asp Gly Ser Ile Arg Pro Lys Gln Asn Gln Asp Gln Cys Leu Thr Xaa
 450 455 460
 Gly Arg Asp Ser Val Ser Thr Val Ile Asn Ile Val Ser Cys Ser Xaa
 465 470 475 480
 Xaa Ser Xaa Xaa Gln Arg Trp Val Phe Thr Asn Glu Xaa Ala Ile Leu
 485 490 495
 Asn Leu Lys Xaa Xaa Xaa Xaa Xaa Asp Val Ala Gln Ala Asn Pro Lys
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Tyr Phe Arg Phe Ile Thr Leu Leu Arg Asp Tyr Val Ser Ser Gly Ser
20              25              30

Phe Ser Asn Glu Ile Pro Leu Leu Arg Gln Ser Thr Ile Pro Val Ser
35              40              45

Asp Ala Gln Arg Phe Val Leu Val Glu Leu Thr Asn Gln Gly Xaa Asp
50              55              60

Ser Xaa Thr Ala Ala Ile Asp Val Thr Asn Xaa Tyr Val Val Ala Tyr
65              70              75              80

Gln Ala Gly Asp Gln Ser Tyr Phe Leu Arg Asp Ala Pro Arg Gly Ala
85              90              95

Glu Thr His Leu Phe Thr Gly Thr Thr Arg Xaa Ser Ser Leu Pro Phe
100             105             110

Xaa Gly Ser Tyr Xaa Asp Leu Glu Arg Tyr Ala Gly His Arg Asp Gln
115             120             125

Ile Pro Leu Gly Ile Xaa Gln Leu Ile Gln Ser Val Xaa Ala Leu Arg
130             135             140

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Ile Gln Met Ile Ser Glu Ala Ala Arg Phe Asn Pro Ile Leu Trp Arg
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Xaa Arg Gln Xaa Ile Asn Ser Gly Xaa Ser Phe Leu Pro Asp Xaa Tyr
180 185 190
Met Leu Glu Leu Glu Thr Ser Trp Gly Gln Gln Ser Thr Gln Val Gln
195 200 205
His Ser Thr Asp Gly Val Phe Asn Asn Pro Xaa Arg Leu Ala Ile Xaa
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20          25          30

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35          40          45

Leu Trp Thr Ile Lys Arg Asp Xaa Thr Ile Arg Ser Asn Gly Ser Cys
50          55          60

Leu Thr Thr Tyr Gly Tyr Thr Ala Gly Val Tyr Val Met Ile Phe Asp
65          70          75          80

Cys Asn Thr Ala Val Arg Glu Ala Thr Ile Trp Gln Ile Trp Xaa Asn
85          90          95

Gly Thr Ile Ile Asn Pro Arg Ser Asn Leu Val Leu Ala Ala Ser Ser
100         105         110

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Gly Ile Lys Gly Thr Thr Leu Thr Val Gln Thr Leu Asp Tyr Thr Leu
 115 120 125
 Gly Gln Gly Trp Leu Ala Gly Asn Asp Thr Ala Pro Arg Glu Val Thr
 130 135 140
 Ile Tyr Gly Phe Arg Asp Leu Cys Met Glu Ser Asn Xaa Gly Ser Val
 145 150 155 160
 Trp Val Glu Thr Cys Xaa Ser Ser Gln Xaa Asn Gln Xaa Xaa Trp Ala
 165 170 175
 Leu Tyr Gly Asp Gly Ser Ile Arg Pro Lys Gln Asn Gln Asp Gln Cys
 180 185 190
 Leu Thr Xaa Gly Arg Asp Ser Val Ser Thr Val Ile Asn Ile Val Ser
 195 200 205
 Cys Ser Xaa Xaa Ser Xaa Xaa Gln Arg Trp Val Phe Thr Asn Glu Xaa
 210 215 220
 Ala Ile Leu Asn Leu Lys Xaa Xaa Xaa Xaa Xaa Asp Val Ala Gln Ala
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 20 25 30
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 35 40 45
 Asp Ala Gln Arg Phe Val Leu Val Glu Leu Thr Asn Gln Gly Gly Asp
 50 55 60
 Ser Ile Thr Ala Ala Ile Asp Val Thr Asn Leu Tyr Val Val Ala Tyr
 65 70 75 80
 Gln Ala Gly Asp Gln Ser Tyr Phe Leu Arg Asp Ala Pro Arg Gly Ala
 85 90 95

Glu	Thr	His	Leu	Phe	Thr	Gly	Thr	Thr	Arg	Ser	Ser	Leu	Pro	Phe	Asn		
			100					105					110				
Gly	Ser	Tyr	Pro	Asp	Leu	Glu	Arg	Tyr	Ala	Gly	His	Arg	Asp	Gln	Ile		
		115					120					125					
Pro	Leu	Gly	Ile	Asp	Gln	Leu	Ile	Gln	Ser	Val	Thr	Ala	Leu	Arg	Phe		
	130					135					140						
Pro	Gly	Gly	Ser	Thr	Arg	Thr	Gln	Ala	Arg	Ser	Ile	Leu	Ile	Leu	Ile		
145					150					155					160		
Gln	Met	Ile	Ser	Glu	Ala	Ala	Arg	Phe	Asn	Pro	Ile	Leu	Trp	Arg	Ala		
				165					170					175			
Arg	Gln	Tyr	Ile	Asn	Ser	Gly	Ala	Ser	Phe	Leu	Pro	Asp	Val	Tyr	Met		
		180						185					190				
Leu	Glu	Leu	Glu	Thr	Ser	Trp	Gly	Gln	Gln	Ser	Thr	Gln	Val	Gln	His		
	195						200					205					
Ser	Thr	Asp	Gly	Val	Phe	Asn	Asn	Pro	Ile	Arg	Leu	Ala	Ile	Pro	Pro		
	210					215					220						
Gly	Asn	Phe	Val	Thr	Leu	Thr	Asn	Val	Arg	Asp	Val	Ile	Ala	Ser	Leu		
225					230					235					240		
Ala	Ile	Met	Leu	Phe	Val	Cys	Gly	Glu	Arg	Pro	Ser	Ser	Ser	Asp	Val		
				245					250					255			
Arg	Tyr	Trp	Pro	Leu	Val	Ile	Arg	Pro	Val	Ile	Ala	Asp	Asp	Val	Thr		
			260					265					270				

Cys	Ser	Ala	Ser	Glu	Pro	Thr	Val	Arg	Ile	Val	Gly	Arg	Asn	Gly	Met		
		275					280					285					
Cys	Val	Asp	Val	Arg	Asp	Asp	Asp	Phe	His	Asp	Gly	Asn	Gln	Ile	Gln		
	290					295					300						
Leu	Trp	Pro	Ser	Lys	Ser	Asn	Asn	Asp	Pro	Asn	Gln	Leu	Trp	Thr	Ile		
305					310					315					320		
Lys	Arg	Asp	Gly	Thr	Ile	Arg	Ser	Asn	Gly	Ser	Cys	Leu	Thr	Thr	Tyr		
			325						330					335			
Gly	Tyr	Thr	Ala	Gly	Val	Tyr	Val	Met	Ile	Phe	Asp	Cys	Asn	Thr	Ala		
			340					345					350				
Val	Arg	Glu	Ala	Thr	Ile	Trp	Gln	Ile	Trp	Gly	Asn	Gly	Thr	Ile	Ile		
	355						360					365					
Asn	Pro	Arg	Ser	Asn	Leu	Val	Leu	Ala	Ala	Ser	Ser	Gly	Ile	Lys	Gly		
	370					375					380						
Thr	Thr	Leu	Thr	Val	Gln	Thr	Leu	Asp	Tyr	Thr	Leu	Gly	Gln	Gly	Trp		
385					390					395					400		
Leu	Ala	Gly	Asn	Asp	Thr	Ala	Pro	Arg	Glu	Val	Thr	Ile	Tyr	Gly	Phe		
				405					410					415			

Arg Asp Leu Cys Met Glu Ser Asn Gly Gly Ser Val Trp Val Glu Thr
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 Cys Val Ser Ser Gln Gln Asn Gln Arg Trp Ala Leu Tyr Gly Asp Gly
 435 440 445
 Ser Ile Arg Pro Lys Gln Asn Gln Asp Gln Cys Leu Thr Cys Gly Arg
 450 455 460
 Asp Ser Val Ser Thr Val Ile Asn Ile Val Ser Cys Ser Ala Gly Ser
 465 470 475 480
 Ser Gly Gln Arg Trp Val Phe Thr Asn Glu Gly Ala Ile Leu Asn Leu
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 35 40 45
 Asp Ala Gln Arg Phe Val Leu Val Glu Leu Thr Asn Gln Gly Gln Asp
 50 55 60
 Ser Ile Thr Ala Ala Ile Asp Val Thr Asn Ala Tyr Val Val Ala Tyr
 65 70 75 80
 Gln Ala Gly Asp Gln Ser Tyr Phe Leu Arg Asp Ala Pro Arg Gly Ala
 85 90 95
 Glu Thr His Leu Phe Thr Gly Thr Thr Arg Asp Arg Ser Ser Leu Pro
 100 105 110
 Phe Thr Gly Ser Tyr Thr Asp Leu Glu Arg Tyr Ala Gly His Arg Asp
 115 120 125
 Gln Ile Pro Leu Gly Ile Glu Gln Leu Ile Gln Ser Val Ser Ala Leu
 130 135 140

Arg Tyr Pro Gly Gly Ser Thr Arg Ala Gln Ala Arg Ser Ile Leu Ile
 145 150 155 160
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 165 170 175
 Arg Tyr Arg Gln Asp Ile Asn Ser Gly Glu Ser Phe Leu Pro Asp Met
 180 185 190
 Tyr Met Leu Glu Leu Glu Thr Ser Trp Gly Gln Gln Ser Thr Gln Val
 195 200 205
 Gln His Ser Thr Asp Gly Val Phe Asn Asn Pro Phe Arg Leu Ala Ile
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 <213> Artificial
 <220>
 <223> mistletoe lectin B
 <400> 6

Asp Asp Val Thr Cys Ser Ala Ser Glu Pro Thr Val Arg Ile Val Gly
 1 5 10 15
 Arg Asn Gly Met Cys Val Asp Val Arg Asp Asp Asp Phe His Asp Gly
 20 25 30
 Asn Gln Ile Gln Leu Trp Pro Ser Lys Ser Asn Asn Asp Pro Asn Gln
 35 40 45
 Leu Trp Thr Ile Lys Arg Asp Gly Thr Ile Arg Ser Asn Gly Ser Cys
 50 55 60
 Leu Thr Thr Tyr Gly Tyr Thr Ala Gly Val Tyr Val Met Ile Phe Asp
 65 70 75 80
 Cys Asn Thr Ala Val Arg Glu Ala Thr Ile Trp Gln Ile Trp Gly Asn
 85 90 95
 Gly Thr Ile Ile Asn Pro Arg Ser Asn Leu Val Leu Ala Ala Ser Ser
 100 105 110
 Gly Ile Lys Gly Thr Thr Leu Thr Val Gln Thr Leu Asp Tyr Thr Leu
 115 120 125
 Gly Gln Gly Trp Leu Ala Gly Asn Asp Thr Ala Pro Arg Glu Val Thr
 130 135 140

Ile Tyr Gly Phe Arg Asp Leu Cys Met Glu Ser Asn Gly Gly Ser Val
 145 150 155 160
 Trp Val Glu Thr Cys Val Ser Ser Gln Gln Asn Gln Arg Trp Ala Leu
 165 170 175
 Tyr Gly Asp Gly Ser Ile Arg Pro Lys Gln Asn Gln Asp Gln Cys Leu
 180 185 190
 Thr Cys Gly Arg Asp Ser Val Ser Thr Val Ile Asn Ile Val Ser Cys
 195 200 205
 Ser Ala Gly Ser Ser Gly Gln Arg Trp Val Phe Thr Asn Glu Gly Ala
 210 215 220
 Ile Leu Asn Leu Lys Asn Gly Leu Ala Met Asp Val Ala Gln Ala Asn
 225 230 235 240
 Pro Lys Leu Arg Arg Ile Ile Ile Tyr Pro Ala Thr Gly Lys Pro Asn
 245 250 255
 Gln Met Trp Leu Pro Val Pro
 260

<210> 7
 <211> 264
 <212> PRT
 <213> Artificial
 <220>
 <223> mistletoe lectin 1 (match)

<400> 7
 Asp Asp Val Thr Cys Ser Ala Ser Glu Pro Thr Val Arg Ile Val Gly
 1 5 10 15
 Arg Asn Gly Met Arg Val Asp Val Arg Asp Asp Asp Phe His Asp Gly
 20 25 30
 Asn Gln Ile Gln Leu Trp Pro Ser Lys Ser Asn Asn Asp Pro Asn Gln
 35 40 45
 Leu Trp Thr Ile Lys Arg Asp Gly Thr Ile Arg Ser Asn Gly Ser Cys
 50 55 60
 Leu Thr Thr Tyr Gly Tyr Thr Ala Gly Val Tyr Val Met Ile Phe Asp
 65 70 75 80
 Cys Asn Thr Ala Val Arg Glu Ala Thr Ile Trp Gln Ile Trp Asp Asn
 85 90 95
 Gly Thr Ile Ile Asn Pro Arg Ser Asn Leu Val Leu Ala Ala Ser Ser
 100 105 110
 Gly Ile Lys Gly Thr Thr Leu Thr Val Gln Thr Leu Asp Tyr Thr Leu
 115 120 125

Gly Gln Gly Trp Leu Ala Gly Asn Asp Thr Ala Pro Arg Glu Val Thr
 130 135 140
 Ile Tyr Gly Phe Arg Asp Leu Cys Met Glu Ser Asn Gly Gly Ser Val
 145 150 155 160
 Trp Val Glu Thr Cys Asp Ser Ser Gln Lys Asn Gln Gly Lys Trp Ala
 165 170 175
 Leu Tyr Gly Asp Gly Ser Ile Arg Pro Lys Gln Asn Gln Asp Gln Cys
 180 185 190
 Leu Thr Ser Gly Arg Asp Ser Val Ser Thr Val Ile Asn Ile Val Ser
 195 200 205
 Cys Ser Gly Ala Ser Gly Ser Gln Arg Trp Val Phe Thr Asn Glu Gly
 210 215 220
 Ala Ile Leu Asn Leu Lys Asn Gly Leu Ala Met Asp Val Ala Gln Ala
 225 230 235 240
 Asn Pro Lys Leu Arg Arg Ile Ile Ile Tyr Pro Ala Thr Gly Lys Pro
 245 250 255
 Asn Gln Met Trp Leu Pro Val Phe
 260

<210> 8
 <211> 264
 <212> PRT
 <213> Artificial

<220>
 <223> mistletoe lectin B2 (match)
 <400> 8

Asp Asp Val Thr Cys Ser Ala Ser Glu Pro Thr Val Arg Ile Val Gly
 1 5 10 15
 Arg Ser Gly Met Arg Val Asp Val Arg Asp Asp Asp Phe His Asp Gly
 20 25 30
 Asn Gln Ile Gln Leu Trp Pro Ser Lys Ser Asn Asn Asp Pro Asn Gln
 35 40 45
 Leu Trp Thr Ile Lys Arg Asp Asn Thr Ile Arg Ser Asn Gly Ser Cys
 50 55 60
 Leu Thr Thr Tyr Gly Tyr Thr Ala Gly Val Tyr Val Met Ile Phe Asp
 65 70 75 80
 Cys Asn Thr Ala Val Arg Glu Ala Thr Ile Trp Gln Ile Trp Asp Asn
 85 90 95
 Gly Thr Ile Ile Asn Pro Arg Ser Asn Leu Val Leu Ala Ala Ser Ser
 100 105 110
 Gly Ile Lys Gly Thr Thr Leu Thr Val Gln Thr Leu Asp Tyr Thr Leu
 115 120 125

Gly Gln Gly Trp Leu Ala Gly Asn Asp Thr Ala Pro Arg Glu Val Thr
 130 135 140
 Ile Tyr Gly Phe Arg Asp Leu Cys Met Glu Ser Asn Gln Gly Ser Val
 145 150 155 160
 Trp Val Glu Thr Cys Asp Ser Ser Gln Lys Asn Gln Gly Lys Trp Ala
 165 170 175
 Leu Tyr Gly Asp Gly Ser Ile Arg Pro Lys Gln Asn Gln Asp Gln Cys
 180 185 190
 Leu Thr Val Gly Arg Asp Ser Val Ser Thr Val Ile Asn Ile Val Ser
 195 200 205
 Cys Ser Gly Ala Ser Gly Ser Gln Arg Trp Val Phe Thr Asn Glu Tyr
 210 215 220
 Ala Ile Leu Asn Leu Lys Ser Gly Leu Ala Met Asp Val Ala Gln Ala
 225 230 235 240
 Asn Pro Lys Leu Arg Arg Ile Ile Ile Tyr Pro Ala Thr Gly Lys Pro
 245 250 255
 Asn Gln Met Trp Leu Pro Val Phe
 260
 <210> 9
 <211> 264
 <212> PRT
 <213> Artificial

<220>
 <223> mistletoe lectin B3 (match)

<400> 9
 Asp Asp Val Thr Cys Ser Ala Ser Glu Pro Thr Val Arg Ile Val Gly
 1 5 10 15
 Arg Asn Gly Met Arg Val Asp Val Arg Asp Asp Asp Phe His Asp Gly
 20 25 30
 Asn Gln Ile Gln Leu Trp Pro Ser Lys Ser Asn Asn Asp Pro Asn Gln
 35 40 45
 Leu Trp Thr Ile Lys Arg Asp Gly Thr Ile Arg Ser Asn Gly Ser Cys
 50 55 60
 Leu Thr Thr Tyr Gly Tyr Thr Ala Gly Val Tyr Val Met Ile Phe Asp
 65 70 75 80
 Cys Asn Thr Ala Val Arg Glu Ala Thr Ile Trp Gln Ile Trp Asp Asn
 85 90 95
 Gly Thr Ile Ile Asn Pro Arg Ser Asn Leu Val Leu Ala Ala Ser Ser
 100 105 110
 Gly Ile Lys Gly Thr Thr Leu Thr Val Gln Thr Leu Asp Tyr Thr Leu
 115 120 125

Gly Gln Gly Trp Leu Ala Gly Asn Asp Thr Ala Pro Arg Glu Val Thr
 130 135 140
 Ile Tyr Gly Phe Arg Asp Leu Cys Met Glu Ser Asn Gly Gly Ser Val
 145 150 155 160
 Trp Val Glu Thr Cys Asp Ser Ser Gln Lys Asn Gln Gly Lys Trp Ala
 165 170 175
 Leu Tyr Gly Asp Gly Ser Ile Arg Pro Lys Gln Asn Gln Asp Gln Cys
 180 185 190
 Leu Thr Ser Gly Arg Asp Ser Val Ser Thr Val Ile Asn Ile Val Ser
 195 200 205
 Cys Ser Gly Ala Ser Gly Ser Gln Arg Trp Val Phe Thr Asn Glu Gly
 210 215 220
 Ala Ile Leu Asn Leu Lys Thr Gly Leu Ala Met Asp Val Ala Gln Ala
 225 230 235 240
 Asn Pro Lys Leu Arg Arg Ile Ile Ile Tyr Pro Ala Thr Gly Lys Pro
 245 250 255
 Asn Gln Met Trp Leu Pro Val Phe
 260

<210> 10
 <211> 264
 <212> PRT
 <213> Artificial

<220>
 <223> mistletoe lectin B4 (match)

<400> 10

Asp Asp Val Thr Cys Ser Ala Ser Glu Pro Thr Val Arg Ile Val Gly
 1 5 10 15
 Arg Asn Gly Met Arg Val Asp Val Arg Asp Asp Asp Phe His Asp Gly
 20 25 30
 Asn Gln Ile Gln Leu Trp Pro Ser Lys Ser Asn Asn Asp Pro Asn Gln
 35 40 45
 Leu Trp Thr Ile Lys Arg Asp Gly Thr Ile Arg Ser Asn Gly Ser Cys
 50 55 60
 Leu Thr Thr Tyr Gly Tyr Thr Ala Gly Val Tyr Val Met Ile Phe Asp
 65 70 75 80
 Cys Asn Thr Ala Val Arg Glu Ala Thr Ile Trp Gln Ile Trp Asp Asn
 85 90 95
 Gly Thr Ile Ile Asn Pro Arg Ser Asn Leu Val Leu Ala Ala Ser Ser
 100 105 110
 Gly Ile Lys Gly Thr Thr Leu Thr Val Gln Thr Leu Asp Tyr Thr Leu
 115 120 125

Gly Gln Gly Trp Leu Ala Gly Asn Asp Thr Ala Pro Arg Glu Val Thr
 130 135 140
 Ile Tyr Gly Phe Arg Asp Leu Cys Met Glu Ser Asn Gly Gly Ser Val
 145 150 155 160
 Trp Val Glu Thr Cys Asp Ser Ser Gln Lys Asn Gln Gly Lys Trp Ala
 165 170 175
 Leu Tyr Gly Asp Gly Ser Ile Arg Pro Lys Gln Asn Gln Asp Gln Cys
 180 185 190
 Leu Thr Ser Gly Arg Asp Ser Val Ser Thr Val Ile Asn Ile Val Ser
 195 200 205
 Cys Ser Gly Ala Ser Gly Ser Gln Arg Trp Val Phe Thr Asn Glu Gly
 210 215 220
 Ala Ile Leu Asn Leu Lys Lys Gly Pro Ala Met Asp Val Ala Gln Ala
 225 230 235 240
 Asn Pro Lys Leu Arg Arg Ile Ile Ile Tyr Pro Ala Thr Gly Lys Pro
 245 250 255
 Asn Gln Met Trp Leu Pro Val Phe
 260

<210> 11
 <211> 264
 <212> PRT
 <213> Artificial

<220>
 <223> mistletoe lectin B5 (match)
 <400> 11

Asp Asp Val Thr Cys Ser Ala Ser Glu Pro Thr Val Arg Ile Val Gly
 1 5 10 15
 Arg Asn Gly Met Arg Val Asp Val Arg Asp Asp Asp Phe His Asp Gly
 20 25 30
 Asn Gln Ile Gln Leu Trp Pro Ser Lys Ser Asn Asn Asp Pro Asn Gln
 35 40 45
 Leu Trp Thr Ile Lys Arg Asp Gly Thr Ile Arg Ser Asn Gly Ser Cys
 50 55 60
 Leu Thr Thr Tyr Gly Tyr Thr Ala Gly Val Tyr Val Met Ile Phe Asp
 65 70 75 80
 Cys Asn Thr Ala Val Arg Glu Ala Thr Ile Trp Gln Ile Trp Asp Asn
 85 90 95
 Gly Thr Ile Ile Asn Pro Arg Ser Asn Leu Val Leu Ala Ala Ser Ser
 100 105 110
 Gly Ile Lys Gly Thr Thr Leu Thr Val Gln Thr Leu Asp Tyr Thr Leu
 115 120 125

Gly Gln Gly Trp Leu Ala Gly Asn Asp Thr Ala Pro Arg Glu Val Thr
 130 135 140
 Ile Tyr Gly Phe Arg Asp Leu Cys Met Glu Ser Asn Gly Gly Ser Val
 145 150 155 160
 Trp Val Glu Thr Cys Asp Ser Ser Gln Lys Asn Gln Gly Lys Trp Ala
 165 170 175
 Leu Tyr Gly Asp Gly Ser Ile Arg Pro Lys Gln Asn Gln Asp Gln Cys
 180 185 190
 Leu Thr Ser Gly Arg Asp Ser Val Ser Thr Val Ile Asn Ile Val Ser
 195 200 205
 Cys Ser Gly Ala Ser Gly Ser Gln Arg Trp Val Phe Thr Asn Glu Gly
 210 215 220
 Ala Ile Leu Asn Leu Lys Asn Ser Leu Met Val Asp Val Ala Gln Ala
 225 230 235 240
 Asn Pro Lys Leu Arg Arg Ile Ile Ile Tyr Pro Ala Thr Gly Lys Pro
 245 250 255
 Asn Gln Met Trp Leu Pro Val Phe
 260

<210> 12
 <211> 1598
 <212> DNA
 <213> Artificial

<220>
 <223> ML-I

 <220>
 <221> misc_feature
 <222> 319
 <223> product= "n is gat aga or missing"
 /label= Z1

 <220>
 <221> misc_feature
 <222> 1322
 <223> product= "n is ggc or missing"
 /label= Z2

<400> 12

 tacgagagggc taagactcag agttacgcat caaaccacgg gcgakaata cttccggttc 60
 atcacgcttc tccgagatta tgtctcaagc ggaagctttt ccaatgagat accactcttg 120
 cgtcagtcta cgatccccgt ctccgatgcg caaagatttg tcttggtgga gctcaccaac 180
 caggggsrrg actcgrtyac ggccgccatc gacgttacca atsyktacgt cgtggettac 240
 caagcaggcg accaatccta ctttttgcg gacgcaccac gcggcgcgga aacgcacctc 300

ttcaccggca ccacccgant cctctctccc attcamyga agctacmcyg atctggagcg	360
atacgccgga catagggacc agatccctct cggatatagas caactcattc aatccgtcwc	420
kgcgcttcgt twyccgggcg gcagcacgcg trecyaagct cgttcgattt taatcctcat	480
tcagatgadc tccgaggccg ccagattcaa tcccatctta tggaggkmyc gccakayat	540
taacagtggg gmrtcatttc tgccagacrt gtacatgctg gagctggaga cgagttgggg	600
ccaacaatcc acgcaagtcc agcattcaac cgatggcggtt ttttaataacc cawtycggtt	660
ggctataycy mcyggtaact tcgtgacgtt gwcyaatgtt cgckmygtga tgcgcagctt	720
ggcgatcatg ttgtttgtat gcggagagcg gccatcttcc tctgacgtgc gctattggcc	780
gctggtcata cgacccgtga tagccgatga tgttacctgc agtgcttcgg aacctacggt	840
gcggattgtg ggtcgaartg gcatgygcgt ggacgtccga gatgacgatt tccacgatgg	900
gaatcagata cagttgtggc cctccaagtc caacaatgat ccgaatcagt tgtggacgat	960
caaaagggat rrmaccattc gatccaatgg cagctgcttg accacgtatg gctatactgc	1020
tggcgtctat gtgatgatct tcgactgtaa tactgctgtg cgggaggcca ctatttggca	1080
gatatgggrc aatgggacca tcatcaatcc aagatccaat ctgggttttg cagcatcatc	1140
tggaatcaaa ggcactacgc ttacggtgca aacactggat tacacgttgg gacagggctg	1200
gcttgccggt aatgataccg cccacgcga ggtgaccata tatggtttca gggaccttg	1260
catggaatca aatsraggga gtgtgtgggt ggagacgtgc gwsagtagcc aamagaacca	1320
<hr/>	
anaratgggc tttgtacggg gatggttcta tacgccccaa aaaaaaccaa gaccaatgcc	1380
tcacckbtgg gagagactcc gtttcaacag taatcaatat agttagctgc agcgswgswt	1440
cgkskkskca gcgatgggtg tttaccaatg aakrsgccat tttgaattta aagavwrgsy	1500
ygrysrtgga tgtggcgcaa gcaaatacaa agctccgccg aataattatc tatcctgcc	1560
caggaaaacc aaatcaaatg tggcttcccg tgyymtga	1598

<210> 13
 <211> 763
 <212> DNA
 <213> Artificial

<220>
 <223> MLA

<220>
 <221> misc_feature
 <222> 319
 <223> product= "n is gat aga or missing"
 /label= z1

<400> 13

tacgagagggc taagactcag agttacgcat caaaccacgg gcgakgaata cttccggttc	60
atcacgcttc tccgagatta tgtctcaagc ggaagctttt ccaatgagat accactcttg	120
cgtcagtcta cgatccccgt ctccgatgcg caaagatttg tcttggtgga gctcaccaac	180
caggggsrrg actcgrtyac ggccgccatc gacgttacca atsyktacgt cgtggcttac	240
caagcaggcg accaatccta ctttttgcg gacgcaccac gcggcgcgga aacgcacctc	300
ttcacoggca ccacccgant cctctctccc attcamyggag agctacmcyg atctggagcg	360
atacgccgga catagggacc agatccctct cggtatagas caactcattc aatccgtcwc	420
kgcgcttcgt twyccgggcg gcagcacgcg trcycaagct cgttcgattt taatcctcat	480
tcagatgata tccgaggccg ccagattcaa tcccatctta tggaggkmyc gccakayat	540
taacagtggg gmrtcatttc tgccagacrt gtacatgctg gagctggaga cgagttgggg	600
ccaacaatcc acgcaagtcc agcattcaac cgatggcggtt ttaataaacc cawtycggtt	660
ggctataycy mcyggttaact tcgtgacgtt gwcyaatgtt cgckmygtga tcgccagctt	720
ggcgatcatg ttgtttgtat gcggagagcg gccatcttcc tct	763

<210> 14
 <211> 793
 <212> DNA
 <213> Artificial

<220>

<223> MLB

<220>

<221> misc_feature
 <222> 517
 <223> product= "n is ggc or missing"
 /label= Z2

<400> 14

gatgatgtta cctgcagtgc ttcggaacct acggtgcgga ttgtgggtcg aartggcatg	60
ygcgtggacg tccgagatga cgatttccac gatgggaatc agatacagtt gtggccctcc	120
aagtccaaca atgatccgaa tcagttgtgg acgatcaaaa gggatrrmac cattogatcc	180
aatggcagct gcttgaccac gtatggctat actgctggcg tctatgtgat gatcttcgac	240
tgtaataactg ctgtgcggga ggccactatt tggcagatat gggrraatgg gaccatcatc	300
aatccaagat ccaatctggt tttggcagca tcctctggaa tcaaaggcac tacgcttacg	360
gtgcaaacac tggattacac gttgggacag ggctggcttg ccggtaatga taccgcccc	420
cgcgagggtga ccatatatgg tttcaggac ctttgcattg aatcaaatsr agggagtgtg	480
tgggtggaga cgtgcgwsag tagccaamag aaccaanara tgggctttgt acggggatgg	540

ttctatacgc	cccaaacaaa	accaagacca	atgcctcacc	kbtgggagag	actccgtttc	600
aacagtaatc	aatatagtta	gctgcagcgs	wgswtcgksk	kskcagcgat	gggtgtttac	660
caatgaakrs	gccattttga	atttaaagav	wrgsyygrys	rtggatgtgg	cgcaagcaaa	720
tccaaagctc	cgccgaataa	ttatctatcc	tgccacagga	aaaccaaate	aaatgtgggt	780
tcccgtgyym	tga					793

<210> 15
 <211> 1596
 <212> DNA
 <213> Artificial

<220>
 <223> MLA-I

<400> 15

tacgagaggc	taagactcag	agttacgcat	caaaccacgg	gcgaggaata	cttccggttc	60
atcacgcttc	tccgagatta	tgtctcaagc	ggaagctttt	ccaatgagat	accactcttg	120
cgtcagtcta	cgatccccgt	ctccgatgcg	caaagatttg	tcttggtgga	gctcaccaac	180
cagggggggag	actcgatcac	ggccgccatc	gacgttacca	atctgtacgt	cgtggccttac	240
caagcaggcg	accaatccta	ctttttgcmc	gacgcaccac	gcggcgcgga	aacgcacctc	300
ttcaccggca	ccaccgatc	ctctctccca	ttcaacggaa	gctaccctga	tctggagcga	360

tacgccggac	atagggacca	gatccctctc	ggtatagacc	aactcattca	atccgtcacg	420
gcgcttcgtt	ttccggggcg	cagcacgcgt	acccaagctc	gttcgatttt	aatcctcatt	480
cagatgatct	ccgaggccgc	cagattcaat	ccatctttat	ggagggctcg	ccaatacatt	540
aacagtgggg	cgtcatttct	gccagacgtg	tacatgctgg	agctggagac	gagttggggc	600
caacaatcca	cgcaagtcca	gcattcaacc	gatggcgttt	ttaataaacc	aattcggttg	660
gctatacccc	ccggtaactt	cgtgacgttg	accaatgttc	gcgacgtgat	cgccagcttg	720
gcgatcatgt	tgtttgatg	cggagagcgg	ccatcttctc	ctgacgtgcg	ctattggccg	780
ctggtcatal	gacccgtgat	agccgatgat	gttacctgca	gtgcttcgga	acctacgggtg	840
cggattgtgg	gtcgaaatgg	catgtgcgtg	gacgtccgag	atgacgattt	ccacgatggg	900
aatcagatac	agttgtggcc	ctccaagtcc	aacaatgata	cgaatcagtt	gtggacgata	960
aaaaggggatg	gaaccattcg	atccaatggc	agctgcttga	ccacgtatgg	ctatactgct	1020
ggcgtctatg	tgatgatctt	cgactgtaat	actgctgtgc	gggaggccac	tatttgccag	1080
atatggggca	atgggacat	catcaatcca	agatccaate	tggttttggc	agcatcatct	1140
ggaatcaaag	gcactacgct	tacggtgcaa	acactggatt	acacgttggg	acagggctgg	1200

cttgccggta atgataccgc cccacgcgag gtgaccatat atggtttcag ggacctttgc	1260
atggaatcaa atggaggggag tgtgtgggtg gagacgtgcg tgagtagcca acagaaccaa	1320
agatgggctt tgtacgggga tggttctata cgccccaaac aaaaccaaga ccaatgcctc	1380
acctgtggga gagactccgt ttcaacagta atcaatatag ttagctgcag cgctggatcg	1440
tctgggcagc gatgggtggt taccaatgaa ggggccattt tgaatttaaa gaatgggttg	1500
gccatggatg tggcgcaagc aaatccaaag ctccgccgaa taattatcta tcccgccaca	1560
ggaaaaccaa atcaaattgtg gcttcccgtg ccatga	1596

<210> 16
 <211> 762
 <212> DNA
 <213> Artificial

<220>
 <223> mistletoe lectin A1

<400> 16

tacgagaggc taagactcag agttacgcat caaaccacgg gcgaggaata cttccggttc	60
atcacgcttc tccgagatta tgtctcaagc ggaagctttt ccaatgagat accactcttg	120
cgtcagtcta cgatccccgt ctccgatgcg caaagatttg tcttggtgga gctcaccaac	180
caggggcagg actcggttac ggccgccatc gacgttacca atgcttacgt cgtggcttac	240

caagcaggcg accaatccta ctttttgcg gacgcaccac gcggcgcgga aacgcacctc	300
ttcaccggca ccacccgac ctctctccca ttcaacggaa gctaccctga tctggagcga	360
tacgccggac atagggacca gatccctctc ggtatagacc aactcattca atccgtcacg	420
gcgcttcgtt ttccggggcg cagcacgct acccaagctc gttcgatttt aatcctcatt	480
cagatgatct ccgaggccgc cagattcaat cccatcttat ggaggtaccg ccaatacatt	540
aacagtgggg cgctatttct gccagacgtg tacatgctgg agctggagac gagttggggc	600
caacaatcca cgcaagtcca gcattcaacc gatggcgttt ttaataaccc aattcggttg	660
gctatacccc ccggtaaactt cgtgacgttg accaatgttc gcgacgtgat cgccagcttg	720
gcgatcatgt tgtttgatg cggagagcgg ccatcttcct ct	762

<210> 17
 <211> 768
 <212> DNA
 <213> Artificial

<220>
 <223> mistletoe lectin A2

<400> 17

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atcacgcttc tccgagatta tgtctcaagc ggaagctttt ccaatgagat accactcttg	120
cgtcagtcta cgatccccgt ctccgatgcg caaagatttg tcttggtgga gctcaccaac	180
caggggcagg actcgatcac ggccgccatc gacgttacca atgcttacgt cgtggcttac	240
caagcaggcg accaatccta ctttttgcg gacgcaccac gcggcgcgga aacgcacctc	300
ttcaccggca ccacccgaga tagatcctct ctcccattca ctggaagcta caccgatctg	360
gagcgatacg ccggacatag ggaccagatc cctctcggtg tagagcaact cattcaatcc	420
gtctctgcgc ttcgttacct gggcggcagc acgcgtgctc aagctcgctc gattttaatc	480
ctcattcaga tgatctccga ggccgccaga ttcaatccca tcttatggag gtaccgccaa	540
gatattaaca gtggggaatc atttctgcca gacatgtaca tgctggagct ggagacgagt	600
tggggccaac aatccacgca agtccagcat tcaaccgatg gcgtttttaa taaccattc	660
cggttggcta tatctactgg taacttcgtg acgttgctta atgttcgctc tgtgatcgcc	720
agcttggcga tcatgttggt tgtatgcgga gagcggccat ctctctct	768

<210> 18
 <211> 1596
 <212> DNA
 <213> Artificial

<220>
 <223> MLI (matched)

<400> 18

tatgaaagat tgagggtgag ggtgactcac cagactacag gagaagagta ttttagattt	60
attactttgt tgagggatta cgtagttct ggttctttca gtaacgaaat tcctttgctt	120
agacaatcta ctattccagt ttctgatgct cagcgtttcg ttcttggtga attgactaac	180
caaggagggtg atagtattac tgctgctatt gatgtgacta acctttatgt tgttgcatat	240
caggctggtg atcagtotta tttccttagg gatgctccta gaggagctga gactcatttg	300
tttactggta caacacggag ttctttgcct tttaacgggt cttatccaga cttggaaaga	360
tatgctggtc acagagatca aattccattg ggaattgatc agttgatcca gagtgttact	420
gctttgagat tcccagggtg atctactaga acacaggcaa gatctatcct tattttgatc	480
caaatgatta gtgaagctgc taggtttaac cctattcttt ggagagcaag acagtatatc	540
aactctgggtg cttctttcct tcctgatgtt tatatgcttg aacttgaaac ttcatgggga	600
cagcagtcta ctcaggttca acacagtaca gacggtgtgt tcaacaatcc tatcagactt	660
gcaattccac ctggaaattt tgttactctt acaaacgtga gagatgttat tgcttctctt	720

gctattatgc ttttcgtttg tggatgaaaga ccttctagtt ctgatgttag atactggcca	780
ttggttatta ggcctgttat cgctgacgat gtgacatggt ctgcatctga accaactggt	840
aggatcgttg gaagaaacgg tatgtgtggt gatgttcggg acgatgactt tcatgacggt	900
aaccaaatacc aactttggcc tagtaagtct aataacgacc caaaccaact ttggactatt	960
aagagagacg gtacaatcag gtctaacgga tcttgtctta ctacatacgg ttacactgca	1020
ggagtttacg ttatgatttt tgattgcaac acagcagtta gagaagctac aatctggcaa	1080
atctggggta acggaactat tattaaccct cgttctaact tgggtgcttg tgcttctagt	1140
ggtattaagg gaacaacttt gactgttcag actttggact atactcttgg tcaaggatgg	1200
ttggctggaa acgacacagc tcctagagaa gttacaatct acggatttag agatttgtgt	1260
atggagtcta acggtggatc tgtttgggtt gaaacttgtg tttcatctca gcaaaatcag	1320
agggtgggcac tttatggtga cggaagtatc agacctaaagc agaatacagga tcagtgtttg	1380
acatgcggtg gggatagtgt gtctactgtt attaacattg tgtcttggtc tgcaggtagt	1440
tctggacaaa ggtgggtttt cacaacgag ggtgctatcc ttaacttgaa gaacgggtctt	1500
gctatggatg ttgctcaggc taaccctaag ttgagaagga ttatcattta cccagctact	1560
ggtaagccta accagatgtg gttgccagtt ccttat	1596

<210> 19

<211> 762

<212> DNA

<213> Artificial

<220>

<223> mistletoe lectin A1

<400> 19

tatgaaagat tgaggttgag ggtgactcac cagactacag gagaagagta ttttagattt	60
attactttgt tgagggatta cgtagttct ggttctttca gtaacgaaat tcctttgctt	120
agacaatcta ctattccagt ttctgatgct cagcgtttcg ttcttggtga attgactaac	180
caaggacagg atagtgttac tgctgctatt gatgtgacta acgcttatgt tgttgcatat	240
caggctggtg atcagtctta tttccttagg gatgctccta gaggagctga gactcatttg	300
tttactggta caacacggag ttctttgcct tttaacgggt cttatccaga cttggaaaga	360
tatgctggtc acagagatca aattccattg ggaattgac agttgatcca gagtgttact	420
gctttgagat tcccagggtg atctactaga acacaggcaa gatctatcct tattttgatc	480
caaatgatta gtgaagctgc taggtttaac cctattcttt ggagatacag acagtatatc	540
aactctggtg cttctttcct tcctgatgtt tatatgcttg aacttgaaac ttcattggga	600

cagcagtcta	ctcaggttca	acacagtaca	gacggtgtgt	tcaacaatcc	tatcagactt	660
gcaattccac	ctggaaatth	tggtactctt	acaaacgtga	gagatgttat	tgcttctctt	720
gctattatgc	ttttcgtttg	tggtgaaaga	ccttctagtt	ct		762

<210> 20
 <211> 768
 <212> DNA
 <213> Artificial

<220>
 <223> mistletoe lectin A2

<400> 20

tatgaaagat	tgaggttgag	ggtgactcac	cagactacag	gagatgagta	ttttagattt	60
attactttgt	tgagggatta	cgtagttct	ggttctttca	gtaacgaaat	tcctttgctt	120
agacaatcta	ctattccagt	ttctgatgct	cagcgtttcg	ttcttggtga	attgactaac	180
caaggacagg	atagtattac	tgctgctatt	gatgtgacta	acgcttatgt	tgttgcatat	240
caggctggtg	atcagtcctta	tttccttagg	gatgctccta	gaggagctga	gactcatttg	300
tttactggta	caacacggga	tagaagttct	ttgcctttta	ctggttctta	tacagacttg	360
gaaagatatg	ctggtcacag	agatcaaatt	ccattgggaa	ttgagcagtt	gatccagagt	420
gtttctgctt	tgagataccc	aggtggatct	actagagctc	aggcaagatc	tatccttatt	480

ttgatccaaa	tgattagtga	agctgctagg	tttaacccta	ttctttggag	atacagacag	540
gatatcaact	ctgggtgaatc	tttccttcct	gatatgtata	tgcttgaact	tgaaacttca	600
tggggacagc	agtctactca	ggttcaacac	agtacagacg	gtgtgttcaa	caatcctttc	660
agacttgcaa	tttctactgg	aaattttggt	actctttcta	acgtgagatc	tgttattgct	720
tctcttgcta	ttatgctttt	cgtttggtg	gaaagacctt	ctagttct		768

<210> 21
 <211> 792
 <212> DNA
 <213> Artificial

<220>
 <223> mistletoe lectin B

<400> 21

gatgatgtta	cctgcagtgc	ttcggaacct	acggtgcgga	ttgtgggtcg	aaatggcatg	60
tgctgggacg	tccgagatga	cgatttccac	gatgggaatc	agatacagtt	gtggccctcc	120
aagtccaaca	atgatccgaa	tcagttgtgg	acgatcaaaa	gggatggaac	cattcgatcc	180

aatggcagct gcttgaccac gtatggctat actgctggcg tctatgtgat gatcttcgac	240
tgttaatactg ctgtgcggga ggccactatt tggcagatat ggggcaatgg gaccatcatc	300
aatccaagat ccaatctggt tttggcagca tcatctggaa tcaaaggcac tacgcttacg	360
gtgcaaacac tggattacac gttgggacag ggctggcttg ccggtaatga taccgcccc	420
cgcgaggtga ccatatatgg tttcagggac ctttgcctgg aatcaaattg agggagtgtg	480
tgggtggaga cgtgcgtgag tagccaacag aaccaaagat gggctttgta cggggatgg	540
tctatacgcc ccaaacaaaa ccaagaccaa tgcctcacct gtgggagaga ctccgtttca	600
acagtaataca atatatgttag ctgcagcgtg ggatcgtctg ggcagcgatg ggtgtttacc	660
aatgaagggg ccattttgaa tttaaagaat gggttggcca tggatgtggc gcaagcaa	720
ccaaagctcc gccgaataat tatctatcct gccacaggaa aaccaaataca aatgtggctt	780
cccgtgccat ga	792

<210> 22
 <211> 795
 <212> DNA
 <213> Artificial

 <220>
 <223> mistletoe lectin B1

 <400> 22

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cgcgtggacg tccgagatga cgatttcac gatgggaatc agatacagtt gtggccctcc	120
aagtccaaca atgatccgaa tcagttgtgg acgatcaaaa gggatggaac cattcgatcc	180
aatggcagct gcttgaccac gtatggctat actgctggcg tctatgtgat gatcttcgac	240
tgttaatactg ctgtgcggga ggccactatt tggcagatat gggacaatgg gaccatcatc	300
aatccaagat ccaatctggt tttggcagca tcatctggaa tcaaaggcac tacgcttacg	360
gtgcaaacac tggattacac gttgggacag ggctggcttg ccggtaatga taccgcccc	420
cgcgaggtga ccatatatgg tttcagggac ctttgcctgg aatcaaattg agggagtgtg	480
tgggtggaga cgtgcgacag tagccaaaag aaccaaggca aatgggcttt gtacggggat	540
ggttctatac gcccacaaac aaaccaagac caatgcctca cctctgggag agactccgtt	600
tcaacagtaa tcaatatagt tagctgcagc ggagcttcgg ggtctcagcg atgggtgttt	660
accaatgaag gggccatttt gaatttaaag aatggggttg ccatggatgt ggcgcaagca	720
aatccaaagc tccgcgaat aattatctat cctgccacag gaaaacaaa tcaaatgtgg	780
cttcccgtgt tctga	795

<210> 23
 <211> 795
 <212> DNA
 <213> Artificial

<220>
 <223> mistletoe lectin B2

<400> 23

gatgatgtta cctgcagtgc ttcggaacct acggtgcgga ttgtgggtcg aagtggcatg	60
cgcggtggacg tccgagatga cgatttccac gatgggaatc agatacagtt gtggccctcc	120
aagtccaaca atgatccgaa tcagttgttg acgatcaaaa gggataaacac cattcgatcc	180
aatggcagct gcttgaccac gtatggctat actgctggcg tctatgtgat gatcttcgac	240
tgtaataactg ctgtgcggga ggccactatt tggcagatat gggacaatgg gaccatcatc	300
aatccaagat ccaatctggt tttggcagca tcatctggaa tcaaaggcac tacgcttacg	360
gtgcaaacac tggattacac gttgggacag ggctggcttg ccggtaatga taccgcccc	420
cgcgaggtga ccatatatgg tttcagggac ctttgcattg aatcaaatca agggagtgtg	480
tgggtggaga cgtgcgacag tagccaaaag aaccaaggca aatgggcttt gtacggggat	540
ggttctatac gcccacaaca aaaccaagac caatgcctca ccgttgggag agactccgtt	600
tcaacagtaa tcaatatagt tagctgcagc ggagcttcgg ggtctcagcg atgggtgttt	660

accaatgaat acgccatttt gaatttaaag agtgggttgg ccatggatgt ggcgcaagca	720
aatccaaagc tccgccgaat aattatctat cctgccacag gaaaaccaa tcaaatgtgg	780
cttcccgtgt tctga	795

<210> 24
 <211> 795
 <212> DNA
 <213> Artificial

<220>
 <223> mistletoe lectin B3

<400> 24

gatgatgtta cctgcagtgc ttcggaacct acggtgcgga ttgtgggtcg aaatggcatg	60
cgcggtggacg tccgagatga cgatttccac gatgggaatc agatacagtt gtggccctcc	120
aagtccaaca atgatccgaa tcagttgttg acgatcaaaa gggatggaac cattcgatcc	180
aatggcagct gcttgaccac gtatggctat actgctggcg tctatgtgat gatcttcgac	240
tgtaataactg ctgtgcggga ggccactatt tggcagatat gggacaatgg gaccatcatc	300
aatccaagat ccaatctggt tttggcagca tcatctggaa tcaaaggcac tacgcttacg	360

gtgcaaacac tggattacac gttgggacag ggctggcttg ccggtaatga taccgccccca	420
cgcgaggtga ccatatatgg tttcagggac ctttgcatgg aatcaaattg agggagtgtg	480
tgggtggaga cgtgcgacag tagccaaaag aaccaaggca aatgggcttt gtacggggat	540
ggttctatac gccccaaaca aaaccaagac caatgcctca cctctgggag agactccgtt	600
tcaacagtaa tcaatatagt tagctgcagc ggagcttcgg ggtctcagcg atgggtgttt	660
accaatgaag gggccatttt gaatttaaag actgggttgg ccatggatgt ggcgcaagca	720
aatccaaagc tccgccgaat aattatctat cctgccacag gaaaaccaa tcaaatgtgg	780
cttcccgtgt tctga	795

<210> 25
 <211> 795
 <212> DNA
 <213> Artificial

<220>
 <223> mistletoe lectin B4

<400> 25

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cgcgaggacg tccgagatga cgatttccac gatgggaatc agatacagtt gtggccctcc	120
aagtccaaca atgatccgaa tcagttgtgg acgatcaaaa gggatggaac cattcgatcc	180

aatggcagct gcttgaccac gtatggctat actgctggcg tctatgtgat gatcttcgac	240
tgtaatactg ctgtgcggga ggccactatt tggcagatat gggacaatgg gaccatcacc	300
aatccaagat ccaatctggt tttggcagca tcatctggaa tcaaaggcac tacgcttacg	360
gtgcaaacac tggattacac gttgggacag ggctggcttg ccggtaatga taccgccccca	420
cgcgaggtga ccatatatgg tttcagggac ctttgcatgg aatcaaattg agggagtgtg	480
tgggtggaga cgtgcgacag tagccaaaag aaccaaggca aatgggcttt gtacggggat	540
ggttctatac gccccaaaca aaaccaagac caatgcctca cctctgggag agactccgtt	600
tcaacagtaa tcaatatagt tagctgcagc ggagcttcgg ggtctcagcg atgggtgttt	660
accaatgaag gggccatttt gaatttaaag aaagggccgg ccatggatgt ggcgcaagca	720
aatccaaagc tccgccgaat aattatctat cctgccacag gaaaaccaa tcaaatgtgg	780
cttcccgtgt tctga	795

<210> 26
 <211> 795
 <212> DNA
 <213> Artificial

<220>
 <223> mistletoe lectin B5
 <400> 26

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cgcggtggacg tccgagatga cgatttccac gatgggaatc agatacagtt gtggccctcc	120
aagtccaaca atgatccgaa tcagttgtgg acgatcaaaa gggatggaac cattcgatcc	180
aatggcagct gcttgaccac gtatggctat actgctggcg tctatgtgat gatcttcgac	240
tgtaatactg ctgtgcggga ggccactatt tggcagatat gggacaatgg gaccatcatc	300
aatccaagat ccaatctggt tttggcagca tcatctggaa tcaaaggcac tacgcttacg	360
gtgcaaacac tggattacac gttgggacag ggctggcttg ccggtaatga taccgcccc	420
cgcgaggtga ccatatatgg tttcaggac ctttgcattg aatcaaattg agggagtgtg	480
tgggtggaga cgtgcgacag tagccaaaag aaccaaggca aatgggcttt gtacggggat	540
ggttctatac gcccacaaca aaaccaagac caatgcctca cctctgggag agactccgtt	600
tcaacagtaa tcaatatagt tagctgcagc ggagcttcgg ggtctcagcg atgggtgttt	660
accaatgaag gggccatttt gaatttaaag aatagcttga tgggtgatgt ggcgcaagca	720
aatccaaagc tccgccgaat aattatctat cctgccacag gaaaaccaa tcaaatgtgg	780
cttcccgtgt tctga	795

<210> 27
 <211> 792
 <212> DNA
 <213> Artificial

<220>
 <223> mistletoe lectin B
 <400> 27

gacgatgtga catgttctgc atctgaacca actggttagga tcgttggaag aaacgggatg	60
tgtgttgatg ttcgggacga tgactttcat gacggtaacc aaatccaact ttggcctagt	120
aagtctaata acgacccaaa ccaactttgg actattaaga gagacggtac aatcaggctc	180
aacggatctt gtcttactac atacgggtac actgcaggag tttacgttat gatTTTTgat	240
tgcaacacag cagttagaga agctacaatc tggcaaatc ggggtaacgg aactattatt	300
aaccctcggt ctaacttggg gcttgctgct tctagtggta ttaagggaa aactttgact	360
gttcagactt tggactatac tcttgggtcaa ggatgggttg ctggaaacga cacagctcct	420
agagaagtta caatctacgg atttagagat ttgtgtatgg agtctaacgg tggatctgtt	480

tggggttga	cttgtgtt	atctcagca	aatcagaggt	gggcacttta	tggtgacgga	540
agtatcagac	ctaagcagaa	tcaggatcag	tgtttgacat	gcggtaggga	tagtgtgtct	600
actgttatta	acattgtgtc	ttgttctgca	ggtagttctg	gacaaaggtg	ggttttcaca	660
aacgaggggtg	ctatccttaa	cttgaagaac	ggtcttgcta	tggatgttgc	tcaggctaac	720
cctaagttga	gaaggattat	catttaccca	gctactggta	agcctaacca	gatgtgggtg	780
ccagttcctt	at					792

<210> 28
 <211> 795
 <212> DNA
 <213> Artificial

<220>
 <223> mistletoe lectin 1 (match)

<400> 28

gacgatgtga	catgttctgc	atctgaacca	actgttagga	tcgttggaag	aaacgggatg	60
cgtgttgatg	ttcggggacga	tgactttcat	gacggtaacc	aaatccaact	ttggcctagt	120
aagtctaata	acgacccaaa	ccaactttgg	actattaaga	gagacggtag	aatcaggtct	180
aacgggatctt	gtcttactac	atacggttac	actgcaggag	tttacgttat	gatttttgat	240
tgcaacacag	cagttagaga	agctacaatc	tggcaaactc	gggataacgg	aactattatt	300

aaccctcggt	ctaacttggg	gcttgctgct	tctagtggta	ttaaggggaa	aactttgact	360
gttcagactt	tggactatac	tcttgggtcaa	ggatgggttg	ctggaaacga	cacagctcct	420
agagaagtta	caatctacgg	atttagagat	ttgtgtatgg	agtctaacgg	tggatctggt	480
tggggttga	cttgtgattc	atctcagaaa	aatcagggca	agtgggcact	ttatgggtgac	540
ggaagtatca	gacctaagca	gaatcaggat	cagtgtttga	catccggtag	ggatagtgtg	600
tctactgtta	ttaacattgt	gtcttgttct	ggagctagtg	gatctcaaag	gtgggttttc	660
acaaacgagg	gtgctatcct	taacttgaag	aacgggtctg	ctatggatgt	tgctcaggct	720
aaccctaagt	tgagaaggat	tatcatttac	ccagctactg	gtaagcctaa	ccagatgtgg	780
ttgccagttt	tttat					795

<210> 29
 <211> 795
 <212> DNA
 <213> Artificial

<220>
 <223> mistletoe lectin B2 (match)

<400> 29

gacgatgtga catgttctgc atctgaacca actgttagga tcgttggaag aagcggatg	60
cgtgttgatg ttcgggacga tgactttcat gacggtaacc aaatccaact ttggcctagt	120
aagtctaata acgacccaaa ccaactttgg actattaaga gagacaatac aatcaggtct	180
aacggatctt gtcttactac atacggttac actgcaggag ttacgttat gatTTTTgat	240
tgcaacacag cagttagaga agctacaatc tggcaaactc gggataacgg aactattatt	300
aaccctcggt ctaacttggg gcttgctgct tctagtggta ttaagggaac aactttgact	360
gttcagactt tggactatac tcttgggtcaa ggatgggttg ctggaaacga cacagctcct	420
agagaagtta caatctacgg atttagagat ttgtgtatgg agtctaacca gggatctggt	480
tgggttgaaa cttgtgattc atctcagaaa aatcagggca agtgggcact ttatggtgac	540
ggaagtatca gacctaagca gaatcaggat cagtgtttga cagtcggtag ggatagtgtg	600
tctactgtta ttaacattgt gtcttgttct ggagctagtg gatctcaaag gtgggttttc	660
acaaacgagt atgctatcct taacttgaag tccgggtctg ctatggatgt tgctcaggct	720
aaccctaagt tgagaaggat tatcatttac ccagctactg gtaagcctaa ccagatgtgg	780
ttgccagttt tttat	795

<210> 30
 <211> 795
 <212> DNA

<213> Artificial

<220>
 <223> mistletoe lectin B3 (match)
 <400> 30

gacgatgtga catgttctgc atctgaacca actgttagga tcgttggaag aaacggatg	60
cgtgttgatg ttcgggacga tgactttcat gacggtaacc aaatccaact ttggcctagt	120
aagtctaata acgacccaaa ccaactttgg actattaaga gagacggtac aatcaggtct	180
aacggatctt gtcttactac atacggttac actgcaggag ttacgttat gatTTTTgat	240
tgcaacacag cagttagaga agctacaatc tggcaaactc gggataacgg aactattatt	300
aaccctcggt ctaacttggg gcttgctgct tctagtggta ttaagggaac aactttgact	360
gttcagactt tggactatac tcttgggtcaa ggatgggttg ctggaaacga cacagctcct	420
agagaagtta caatctacgg atttagagat ttgtgtatgg agtctaacgg tggatctggt	480
tgggttgaaa cttgtgattc atctcagaaa aatcagggca agtgggcact ttatggtgac	540
ggaagtatca gacctaagca gaatcaggat cagtgtttga catccggtag ggatagtgtg	600
tctactgtta ttaacattgt gtcttgttct ggagctagtg gatctcaaag gtgggttttc	660

acaaacgagg gtgctatcct taacttgaag accggtcttg ctatggatgt tgctcaggct	720
aaccctaagt tgagaaggat tatcatttac ccagctactg gtaagcctaa ccagatgtgg	780
ttgccagttt tttat	795

<210> 31
 <211> 795
 <212> DNA
 <213> Artificial

<220>
 <223> mistletoe lectin B4 (match)

<400> 31

gacgatgtga catgttctgc atctgaacca actgttagga tcgttggaag aaacggtatg	60
cgtgttgatg ttcgggacga tgactttcat gacggtaacc aaatccaact ttggcctagt	120
aagtctaata acgacccaaa ccaactttgg actattaaga gagacggtac aatcaggctct	180
aacggatctt gtcttactac atacgggttac actgcaggag tttacgttat gatttttgat	240
tgcaacacag cagttagaga agctacaatc tggcaaatct gggataacgg aactattatt	300
aaccctcgtt ctaacttggg gcttgctgct tctagtggta ttaagggaaac aactttgact	360
gttcagactt tggactatac tcttggtcaa ggatgggtgg ctggaaacga cacagctcct	420
aqagaagtta caatctacgg atttagagat ttgtgtatgg agtctaacgg tggatctgtt	480

tggggtgaaa cttgtgattc atctcagaaa aatcagggca agtgggcact ttatggtgac	540
ggaagtatca gacctaagca gaatcaggat cagtgtttga catccggtag ggatagtgtg	600
tctactgtta ttaacattgt gtcttgttct ggagctagtg gatctcaaag gtgggttttc	660
acaaacgagg gtgctatcct taacttgaag aaaggtcctg ctatggatgt tgctcaggct	720
aaccctaagt tgagaaggat tatcatttac ccagctactg gtaagcctaa ccagatgtgg	780
ttgccagttt tttat	795

<210> 32
 <211> 795
 <212> DNA
 <213> Artificial

<220>
 <223> mistletoe lectin B5 (match)

<400> 32

gacgatgtga catgttctgc atctgaacca actgttagga tcgttggaag aaacggtatg	60
cgtgttgatg ttcgggacga tgactttcat gacggtaacc aaatccaact ttggcctagt	120

aagtctaata acgacccaaa ccaactttgg actattaaga gagacggtac aatcaggtct 180
aacggatctt gtcttactac atacgggttac actgcaggag ttacggtat gatttttgat 240
tgcaacacag cagttagaga agctacaatc tggcaaactc gggataacgg aactattatt 300
aaccctcggt ctaacttggg gcttgctgct tctagtggta ttaagggaaac aactttgact 360
gttcagactt tggactatac tcttgggtcaa ggatgggttg ctggaaacga cacagctcct 420
agagaagtta caatctacgg atttagagat ttgtgtatgg agtctaacgg tggatctggt 480
tgggttgaaa cttgtgattc atctcagaaa aatcagggca agtgggcact ttatgggtgac 540
ggaagtatca gacctaagca gaatcaggat cagtgtttga catccggtag ggatagtgtg 600
tctactgtta ttaacattgt gtcttgttct ggagctagtg gatctcaaag gtgggttttc 660
acaaacgagg gtgctatcct taacttgaag aactctctta tgggtggatgt tgctcaggct 720
aaccctaagt tgagaaggat tatcatttac ccagctactg gtaagcctaa ccagatgtgg 780
ttgccagttt tttat 795

<210> 33

<211> 20

<212> DNA

<213> Artificial

<220>

<223> primer

<220>

<221> misc_feature

<222> (3)..(3)

<223> n= a, t, g, or c

<220>

<221> misc_feature

<222> (6)..(6)

<223> n= a, t, g, or c

<400> 33

gtnmgngayg aygayttyca

20

<210> 34

<211> 20
 <212> DNA
 <213> Artificial

 <220>
 <223> primer

 <220>

 <221> misc_feature
 <222> (9)..(9)
 <223> n= a, t, g, or c

 <220>

 <221> misc_feature
 <222> (15)..(15)
 <223> n= a, t, g, or c

 <220>

 <221> misc_feature
 <222> (18)..(18)
 <223> n= a, t, g, or c

<400> 34

atytgrttng gyttncngt

20

<210> 35
 <211> 21
 <212> DNA
 <213> Artificial

<220>
 <223> primer

<400> 35

cacagcagta ttacagtcga a

21

<210> 36
 <211> 24
 <212> DNA
 <213> Artificial

<220>
 <223> primer

<400> 36

gtctatgtga tgatcttcga ctgt

24

<210> 37

<211> 254

<212> PRT

<213> Artificial

<220>

<223> mistletoe lectin A1

<400> 37

Tyr Glu Arg Leu Arg Leu Arg Val Thr His Gln Thr Thr Gly Glu Glu
1 5 10 15

Tyr Phe Arg Phe Ile Thr Leu Leu Arg Asp Tyr Val Ser Ser Gly Ser
20 25 30

Phe Ser Asn Glu Ile Pro Leu Leu Arg Gln Ser Thr Ile Pro Val Ser
35 40 45

Asp Ala Gln Arg Phe Val Leu Val Glu Leu Thr Asn Gln Gly Gln Asp
50 55 60

Ser Val Thr Ala Ala Ile Asp Val Thr Asn Ala Tyr Val Val Ala Tyr
65 70 75 80

Gln Ala Gly Asp Gln Ser Tyr Phe Leu Arg Asp Ala Pro Arg Gly Ala
85 90 95

Glu Thr His Leu Phe Thr Gly Thr Thr Arg Ser Ser Leu Pro Phe Asn
100 105 110

Gly Ser Tyr Pro Asp Leu Glu Arg Tyr Ala Gly His Arg Asp Gln Ile
115 120 125

Pro Leu Gly Ile Asp Gln Leu Ile Gln Ser Val Thr Ala Leu Arg Phe
130 135 140

Pro Gly Gly Ser Thr Arg Thr Gln Ala Arg Ser Ile Leu Ile Leu Ile
145 150 155 160

Gln Met Ile Ser Glu Ala Ala Arg Phe Asn Pro Ile Leu Trp Arg Tyr
165 170 175

Arg Gln Tyr Ile Asn Ser Gly Ala Ser Phe Leu Pro Asp Val Tyr Met
180 185 190

Leu Glu Leu Glu Thr Ser Trp Gly Gln Gln Ser Thr Gln Val Gln His
 195 200 205
 Ser Thr Asp Gly Val Phe Asn Asn Pro Ile Arg Leu Ala Ile Pro Pro
 210 215 220
 Gly Asn Phe Val Thr Leu Thr Asn Val Arg Asp Val Ile Ala Ser Leu
 225 230 235 240
 Ala Ile Met Leu Phe Val Cys Gly Glu Arg Pro Ser Ser Ser
 245 250

<210> 38

<211> 256

<212> PRT

<213> Artificial

<220>

<223> mistletoe lectin A2

<400> 38

Tyr Glu Arg Leu Arg Leu Arg Val Thr His Gln Thr Thr Gly Asp Glu
 1 5 10 15
 Tyr Phe Arg Phe Ile Thr Leu Leu Arg Asp Tyr Val Ser Ser Gly Ser
 20 25 30

Phe Ser Asn Glu Ile Pro Leu Leu Arg Gln Ser Thr Ile Pro Val Ser
 35 40 45
 Asp Ala Gln Arg Phe Val Leu Val Glu Leu Thr Asn Gln Gly Gln Asp
 50 55 60
 Ser Ile Thr Ala Ala Ile Asp Val Thr Asn Ala Tyr Val Val Ala Tyr
 65 70 75 80
 Gln Ala Gly Asp Gln Ser Tyr Phe Leu Arg Asp Ala Pro Arg Gly Ala
 85 90 95
 Glu Thr His Leu Phe Thr Gly Thr Thr Arg Asp Arg Ser Ser Leu Pro
 100 105 110
 Phe Thr Gly Ser Tyr Thr Asp Leu Glu Arg Tyr Ala Gly His Arg Asp
 115 120 125
 Gln Ile Pro Leu Gly Ile Glu Gln Leu Ile Gln Ser Val Ser Ala Leu
 130 135 140
 Arg Tyr Pro Gly Gly Ser Thr Arg Ala Gln Ala Arg Ser Ile Leu Ile
 145 150 155 160
 Leu Ile Gln Met Ile Ser Glu Ala Ala Arg Phe Asn Pro Ile Leu Trp
 165 170 175

Arg Tyr Arg Gln Asp Ile Asn Ser Gly Glu Ser Phe Leu Pro Asp Met
180 185 190

Tyr Met Leu Glu Leu Glu Thr Ser Trp Gly Gln Gln Ser Thr Gln Val
195 200 205

Gln His Ser Thr Asp Gly Val Phe Asn Asn Pro Phe Arg Leu Ala Ile
210 215 220

Ser Thr Gly Asn Phe Val Thr Leu Ser Asn Val Arg Ser Val Ile Ala
225 230 235 240

Ser Leu Ala Ile Met Leu Phe Val Cys Gly Glu Arg Pro Ser Ser Ser
245 250 255

<210> 39

<211> 253

<212> PRT

<213> Artificial

<220>

<223> mistletoe lectin A1 (matched)

<400> 39

Tyr Glu Arg Leu Arg Leu Arg Val Thr His Gln Thr Thr Gly Glu Glu
1 5 10 15

Tyr Phe Arg Phe Ile Thr Leu Leu Arg Asp Tyr Val Ser Ser Gly Ser
20 25 30

Phe Ser Asn Glu Ile Pro Leu Leu Arg Gln Ser Thr Ile Pro Val Ser
35 40 45

Asp Ala Gln Arg Phe Val Leu Val Glu Leu Thr Asn Gln Gly Gln Asp
50 55 60

Ser Val Thr Ala Ala Ile Asp Val Thr Asn Ala Tyr Val Val Ala Tyr
65 70 75 80

Gln Ala Gly Asp Gln Ser Tyr Phe Leu Arg Asp Ala Pro Arg Gly Ala
85 90 95

Glu Thr His Leu Phe Thr Gly Thr Thr Arg Ser Ser Leu Pro Phe Asn
100 105 110

Gly Ser Tyr Pro Asp Leu Glu Arg Tyr Ala Gly His Arg Gln Ile Pro
115 120 125

Leu Gly Ile Asp Gln Leu Ile Gln Ser Val Thr Ala Leu Arg Phe Pro
130 135 140

Gly Gly Ser Thr Arg Thr Gln Ala Arg Ser Ile Leu Ile Leu Ile Gln
 145 150 155 160
 Met Ile Ser Glu Ala Ala Arg Phe Asn Pro Ile Leu Trp Arg Tyr Arg
 165 170 175
 Gln Tyr Ile Asn Ser Gly Ala Ser Phe Leu Pro Asp Val Tyr Met Leu
 180 185 190
 Glu Leu Glu Thr Ser Trp Gly Gln Gln Ser Thr Gln Val Gln His Ser
 195 200 205
 Thr Asp Gly Val Phe Asn Asn Pro Ile Arg Leu Ala Ile Pro Pro Gly
 210 215 220
 Asn Phe Val Thr Leu Thr Asn Val Arg Asp Val Ile Ala Ser Leu Ala
 225 230 235 240
 Ile Met Leu Phe Val Cys Gly Glu Arg Pro Ser Ser Ser
 245 250

<210> 40

<211> 534

<212> PRT

<213> Artificial

<220>

<223> mistletoe lectin

<220>

<221> SITE

<222> (15)..(15)

<223> Xaa is Asp or Glu

<220>

<221> SITE

<222> (63)..(63)

<223> Xaa is Gly or Gln

<220>

<221> SITE

<222> (66)..(66)

<223> Xaa is Ile or Val

<220>

<221> SITE

<222> (75)..(75)

<223> Xaa is Leu or Ala

<220>

<221> SITE

<222> (114)..(114)

<223> Xaa is Asn or Thr

<220>

<221> SITE

<222> (118)..(118)

<223> Xaa is Pro or Thr

<220>

<221> SITE

<222> (135)..(135)

<223> Xaa is Asp or Glu

<220>

<221> SITE

<222> (142)..(142)

<223> Xaa is Ser or Thr

<220>

<221> SITE
<222> (146)..(146)
<223> Xaa is Phe or Tyr

<220>

<221> SITE
<222> (153)..(153)
<223> Xaa is Thr or Ala

<220>

<221> SITE
<222> (178)..(178)
<223> Xaa is Ala or Tyr

<220>

<221> SITE

<222> (181)..(181)
<223> Xaa is Tyr or Asp

<220>

<221> SITE
<222> (186)..(186)
<223> Xaa is Ala or Glu

<220>

<221> SITE
<222> (192)..(192)
<223> Xaa is Val or Met

<220>

<221> SITE

<222> (220) .. (220)
<223> Xaa is Ile or Phe

<220>

<221> SITE

<222> (225) .. (225)

<223> Xaa is Pro or Ser

<220>

<221> SITE

<222> (226) .. (226)

<223> Xaa is Pro or Thr

<220>

<221> SITE

<222> (233) .. (233)

<223> Xaa is Thr or Ser

<220>

<221> SITE

<222> (237) .. (237)

<223> Xaa is Asp or Ser

<220>

<221> SITE

<222> (288) .. (288)

<223> Xaa is Asn or Ser

<220>

<221> SITE

<222> (291) .. (291)

<223> Xaa is Cys or Arg

<220>

<221> SITE

<222> (326)..(326)

<223> Xaa is Gly or Asn

<220>

<221> SITE

<222> (365)..(365)

<223> Xaa is Gly or Asp

<220>

<221> SITE

<222> (427)..(427)

<223> Xaa is Gly or Gln

<220>

<221> SITE

<222> (436)..(436)

<223> Xaa is Val or Asp

<220>

<221> SITE

<222> (440)..(440)

<223> Xaa is Gln or Lys

<220>

<221> SITE

<222> (443)..(443)

<223> Xaa is Gly or missing

<220>

<221> SITE

<222> (444)..(444)

<223> Xaa is Arg or Lys

<220>

<221> SITE

<222> (465)..(465)

<223> Xaa is Cys or Ser or Val

<220>

<221> SITE

<222> (481)..(481)

<223> Xaa is Ala or Gly

<220>

<221> SITE

<222> (482)..(482)

<223> Xaa is Gly or Ala

<220>

<221> SITE

<222> (484)..(484)

<223> Xaa is Ser or Gly

<220>

<221> SITE

<222> (485)..(485)

<223> Xaa is Gly or Ser

<220>

<221> SITE

<222> (494)..(494)

<223> Xaa is Gly or Tyr

<220>

<221> SITE

<222> (501)..(501)

<223> Xaa is Asn or Ser or Thr or Lys

<220>

<221> SITE

<222> (502)..(502)

<223> Xaa is Ser or Gly

<220>

<221> SITE

<222> (503)..(503)

<223> Xaa is Leu or Pro

<220>

<221> SITE

<222> (504)..(504)

<223> Xaa is Ala or Met

<220>

<221> SITE

<222> (505)..(505)

<223> Xaa is Met or Val

<220>

<221> SITE

<222> (534)..(534)

<223> Xaa is Pro or Phe

<400> 40

Tyr Glu Arg Leu Arg Leu Arg Val Thr His Gln Thr Thr Gly Xaa Glu
1 5 10 15

Tyr Phe Arg Phe Ile Thr Leu Leu Arg Asp Tyr Val Ser Ser Gly Ser
20 25 30

Phe Ser Asn Glu Ile Pro Leu Leu Arg Gln Ser Thr Ile Pro Val Ser
35 40 45

Asp Ala Gln Arg Phe Val Leu Val Glu Leu Thr Asn Gln Gly Xaa Asp
50 55 60

Ser Xaa Thr Ala Ala Ile Asp Val Thr Asn Xaa Tyr Val Val Ala Tyr
65 70 75 80

Gln Ala Gly Asp Gln Ser Tyr Phe Leu Arg Asp Ala Pro Arg Gly Ala
85 90 95

Glu Thr His Leu Phe Thr Gly Thr Thr Arg Asp Arg Ser Ser Leu Pro
100 105 110

Phe Xaa Gly Ser Tyr Xaa Asp Leu Glu Arg Tyr Ala Gly His Arg Asp
115 120 125

Gln Ile Pro Leu Gly Ile Xaa Gln Leu Ile Gln Ser Val Xaa Ala Leu
130 135 140

Arg Xaa Pro Gly Gly Ser Thr Arg Xaa Gln Ala Arg Ser Ile Leu Ile
145 150 155 160

Leu Ile Gln Met Ile Ser Glu Ala Ala Arg Phe Asn Pro Ile Leu Trp
165 170 175

Arg Xaa Arg Gln Xaa Ile Asn Ser Gly Xaa Ser Phe Leu Pro Asp Xaa
180 185 190

Tyr Met Leu Glu Leu Glu Thr Ser Trp Gly Gln Gln Ser Thr Gln Val
195 200 205

Gln His Ser Thr Asp Gly Val Phe Asn Asn Pro Xaa Arg Leu Ala Ile
210 215 220

Xaa Xaa Gly Asn Phe Val Thr Leu Xaa Asn Val Arg Xaa Val Ile Ala
225 230 235 240

Ser Leu Ala Ile Met Leu Phe Val Cys Gly Glu Arg Pro Ser Ser Ser
245 250 255

Asp Val Arg Tyr Trp Pro Leu Val Ile Arg Pro Val Ile Ala Asp Asp
260 265 270

Val Thr Cys Ser Ala Ser Glu Pro Thr Val Arg Ile Val Gly Arg Xaa
275 280 285

Gly Met Xaa Val Asp Val Arg Asp Asp Asp Phe His Asp Gly Asn Gln
290 295 300

Ile Gln Leu Trp Pro Ser Lys Ser Asn Asn Asp Pro Asn Gln Leu Trp
305 310 315 320

Thr Ile Lys Arg Asp Xaa Thr Ile Arg Ser Asn Gly Ser Cys Leu Thr
325 330 335

Thr Tyr Gly Tyr Thr Ala Gly Val Tyr Val Met Ile Phe Asp Cys Asn
340 345 350

Thr Ala Val Arg Glu Ala Thr Ile Trp Gln Ile Trp Xaa Asn Gly Thr
355 360 365

Ile Ile Asn Pro Arg Ser Asn Leu Val Leu Ala Ala Ser Ser Gly Ile
370 375 380

Lys Gly Thr Thr Leu Thr Val Gln Thr Leu Asp Tyr Thr Leu Gly Gln
385 390 395 400

Gly Trp Leu Ala Gly Asn Asp Thr Ala Pro Arg Glu Val Thr Ile Tyr
405 410 415

Gly Phe Arg Asp Leu Cys Met Glu Ser Asn Xaa Gly Ser Val Trp Val
420 425 430

Glu Thr Cys Xaa Ser Ser Gln Xaa Asn Gln Xaa Xaa Trp Ala Leu Tyr
435 440 445

Gly Asp Gly Ser Ile Arg Pro Lys Gln Asn Gln Asp Gln Cys Leu Thr
450 455 460

Xaa Gly Arg Asp Ser Val Ser Thr Val Ile Asn Ile Val Ser Cys Ser
465 470 475 480

Xaa Xaa Ser Xaa Xaa Gln Arg Trp Val Phe Thr Asn Glu Xaa Ala Ile
485 490 495

Leu Asn Leu Lys Xaa Xaa Xaa Xaa Asp Val Ala Gln Ala Asn Pro
500 505 510

Lys Leu Arg Arg Ile Ile Ile Tyr Pro Ala Thr Gly Lys Pro Asn Gln
515 520 525

Met Trp Leu Pro Val Xaa
530

<210> 41

<211> 256

<212> PRT

<213> Artificial

<220>

<223> MLA-chain

<220>

<221> SITE

<222> (15)..(15)

<223> Xaa is Asp or Glu

<220>

<221> SITE

<222> (63)..(63)

<223> Xaa is Gly or Gln

<220>

<221> SITE

<222> (66)..(66)

<223> Xaa is Ile or Val

<220>

<221> SITE

<222> (75)..(75)

<223> Xaa is Leu or Ala

<220>

<221> SITE

<222> (114)..(114)

<223> Xaa is Asn or Thr

<220>

<221> SITE

<222> (118)..(118)
<223> Xaa is Pro or Thr

<220>

<221> SITE

<222> (135)..(135)

<223> Xaa is Asp or Glu

<220>

<221> SITE

<222> (142)..(142)

<223> Xaa is Ser or Thr

<220>

<221> SITE

<222> (146)..(146)

<223> Xaa is Phe or Tyr

<220>

<221> SITE

<222> (153)..(153)

<223> Xaa is Thr or Ala

<220>

<221> SITE

<222> (178)..(178)

<223> Xaa is Ala or Tyr

<220>

<221> SITE

<222> (181)..(181)

<223> Xaa is Tyr or Asp

<220>

<221> SITE

<222> (186) .. (186)

<223> Xaa is Ala or Glu

<220>

<221> SITE

<222> (192) .. (192)

<223> Xaa is Val or Met

<220>

<221> SITE

<222> (220) .. (220)

<223> Xaa is Ile or Phe

<220>

<221> SITE

<222> (225) .. (225)

<223> Xaa is Pro or Ser

<220>

<221> SITE

<222> (226) .. (226)

<223> Xaa is Pro or Thr

<220>

<221> SITE

<222> (233) .. (233)

<223> Xaa is Thr or Ser

<220>

<221> SITE

<222> (237)..(237)

<223> Xaa is Asp or Ser

<400> 41

Tyr Glu Arg Leu Arg Leu Arg Val Thr His Gln Thr Thr Gly Xaa Glu
1 5 10 15

Tyr Phe Arg Phe Ile Thr Leu Leu Arg Asp Tyr Val Ser Ser Gly Ser
20 25 30

Phe Ser Asn Glu Ile Pro Leu Leu Arg Gln Ser Thr Ile Pro Val Ser
35 40 45

Asp Ala Gln Arg Phe Val Leu Val Glu Leu Thr Asn Gln Gly Xaa Asp
50 55 60

Ser Xaa Thr Ala Ala Ile Asp Val Thr Asn Xaa Tyr Val Val Ala Tyr
65 70 75 80

Gln Ala Gly Asp Gln Ser Tyr Phe Leu Arg Asp Ala Pro Arg Gly Ala
85 90 95

Glu Thr His Leu Phe Thr Gly Thr Thr Arg Asp Arg Ser Ser Leu Pro
100 105 110

Phe Xaa Gly Ser Tyr Xaa Asp Leu Glu Arg Tyr Ala Gly His Arg Asp
115 120 125

Gln Ile Pro Leu Gly Ile Xaa Gln Leu Ile Gln Ser Val Xaa Ala Leu
130 135 140

Arg Xaa Pro Gly Gly Ser Thr Arg Xaa Gln Ala Arg Ser Ile Leu Ile
145 150 155 160

Leu Ile Gln Met Ile Ser Glu Ala Ala Arg Phe Asn Pro Ile Leu Trp
165 170 175

Arg Xaa Arg Gln Xaa Ile Asn Ser Gly Xaa Ser Phe Leu Pro Asp Xaa
180 185 190

Tyr Met Leu Glu Leu Glu Thr Ser Trp Gly Gln Gln Ser Thr Gln Val
195 200 205

Gln His Ser Thr Asp Gly Val Phe Asn Asn Pro Xaa Arg Leu Ala Ile
210 215 220

Xaa Xaa Gly Asn Phe Val Thr Leu Xaa Asn Val Arg Xaa Val Ile Ala
225 230 235 240

Ser Leu Ala Ile Met Leu Phe Val Cys Gly Glu Arg Pro Ser Ser Ser
245 250 255

P1
Agachade